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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,872	07/24/2003	Alberto Molinari	37979/GM/pal	9269

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EXAMINER

YEE, DEBORAH

ART UNIT PAPER NUMBER

1742

DATE MAILED: 09/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/625,872

Applicant(s)

MOLINARI ET AL.

Examiner

Deborah Yee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1-14-04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Upon further reconsideration, the restriction dated 4-26-05 has been withdrawn.

### ***Specification***

2. The disclosure is objected to because of the following informalities: There appears to be a discrepancy in Table 1 on page 18. The listed TYPE 2 cast iron contains Ni+RE at 0.5% and is outside the claimed Ni+RE range of 1.7 to 5% yet it is disclosed as an alloy according to the invention.

Appropriate correction is required.

### ***Claim Objections***

3. Claims 3 to 5, 7,9 and 10 are objected to because of the following informalities: Claims recite "one or more of the preceding claims". The actual claim number for dependency should be listed, e.g. ---The spheroidal cast iron according to claims 1 and 2---. Appropriate correction is required.
4. Also claims 4 to 10 are objected to because they are improper multiple dependent claims wherein a multiple dependent claim is dependent on another multiple dependent claim.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Regarding claim 10, the phrase "in particularly" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

7. Claims 6 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. In claim 9, the recitation "bainitic-austenitic type" is indefinite. Note that the addition of the word "type" to an otherwise definite expression is held to be indefinite because it is unclear what "type" was intended to convey, see MPEP 2173.05©.

9. Claim 6, last 2 lines recite "RE with the addition of at least one of the elements chosen from the class that comprises Mg, Ca, Ce, Ta, Sr, Al, RE." This limitation is indefinite because RE is listed twice; and also since Ce and Sr are rare earth elements (RE), then they need not be listed as an additional element.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1,2 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Neuhauser et al (US Patent 4,435,226) or Hanakawa et al (US Patent 4,863,533).

12. Claim 6 in columns 9 and 10 of Hanakawa and claims 11 to 17 in columns 7 and 8 of Neuhauser, each disclose a spheroidal cast iron alloy for a piston ring having a composition comprising Fe, C, Si, Mo, Ni, RE and at least one element selected from group consisting of Ti, V, and Nb in amounts of 0.1 to 2%wt%; and hence anticipates the recited claims.

13. Claims 1,2 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kovacs et al (US Patent 4,596,060).

14. Kovacs on lines 1 to 30 in column 3 discloses an austenitic-bainitic austempered spheroidal cast iron alloy having a composition comprising Fe, C, Si, Mo, Ni, RE and at least one element selected from group consisting of Ti, V, and Nb in amounts of 0.1 to 2 wt%; and hence anticipates the recited claims.

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 3 to 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neuhauser et al (US Patent 4,435,226) or Hanakawa et al (US Patent 4,863,533) alone or in view of ASM teaching.

17. Claims 3 to 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kovacs et al (US Patent 4,596,606) alone or in view of ASM teaching.

18. Each reference teaches a cast iron alloy with constituents whose wt% ranges overlap or closely approximate those recited by claims 1 to 4; such similarities establish a prima facie case of obviousness because it would be obvious to one skilled in the art to select the claimed alloy wt% ranges over the broader disclosure of the prior art since the prior art has the same utility and/or properties of high strength, hardness and toughness, MPEP 2144.05. See Kovacs, lines 1 to 2 of column 3; Hanakawa, claim 6 of columns 9-10; and Neuhauser, claims 11 to 17 of columns 7 and 8.

19. Moreover, prior art cast iron alloys are processed with essentially the same steps as recited by claims 5 to 7; see Kovacs in claims 1 and 8 in columns 6-7 disclose forming a ferrous alloy melt, casting, and austempering by austenitizing at 1500 to 1700F (815 to 927C) for 0.5 to 4 hours, quenching and tempering at 400 to 800F (204 to 427) for 0.5 to 4 hours; Neuhausser in claims 11-12 of columns 7-8 discloses forming ferrous alloy melt, casting, annealing at above 950C, quench and temper above 300C; and Hanakawa, lines 57 to 68 column 3 and lines 1 to 17 in column 4 discloses forming ferrous alloy casting followed by heating at 800 to 900C for about 30 minutes followed by tempering at 300 to 550C for 10 minutes to 4 hours. Note the prior art temperature and time ranges overlap those recited by the claims; such overlap establishes a prima facie case of obviousness because it would be obvious to one of ordinary skill in the art to select the claimed temperature and time ranges over the broader disclosure of the prior art since the prior art has the same utility and/or properties of high strength and toughness.

20. Even though prior art does teach the additional step of heating (annealing) cast iron alloy to relieve strain as recited by claim 8, such step would be obvious to incorporate since it is well known and common practice in the metallurgical art to perform after casting and forming, see ASM teaching.

21. In regard to claim 10, Hanakawa and Neuhauser teach using cast iron alloy for making piston ring for internal-combustion engine.

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22. Kovacs discloses a cast iron alloy having high hardness, strength and toughness which are properties desired and sought for making piston rings; hence it would be obvious for one skilled in the art to use cast iron for such application.

23. In regard to claim 9, Kovacs in claim 9 of column 8 discloses a matrix of 30% austenite and 70% bainite.

***Information Disclosure Statement***

2. The European search report submitted January 14, 2004 has been considered by the Examiner. The DE 4305027 would not appear to be relevant because the cast iron alloy does not contain REM and Ni is low. It would be helpful if applicant could provide a brief English translation of German patent.

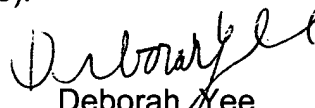
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on Monday-Friday from 6:00 to 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Deborah Yee  
Primary Examiner  
Art Unit 1742

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